

REMARKS

Claims 2-14, 16-26, 28-34, and 36-41 are pending in the application. Claims 2-14, 16-26, 28-34, and 36-41 stand rejected by the examiner. Drawings are submitted herewith that include proposed changes in accordance with the Examiner's requirements. The description is amended to correlate with the proposed changes to the drawings. The claims are amended to clearly claim that which the inventor believes to be the invention. No new matter has been added by the amendments. Reconsideration of the application, as amended, is respectfully requested. The examiner's objections and rejections are addressed in substantially the same order as in the referenced office action.

Drawing Objections

The Examiner objects to the drawings because two figures are labeled as Fig. 3B. Proposed changes to the drawings are filed herewith. Applicant submits that the changes are sufficient to overcome the Examiner's objections. The figure shown on sheet 4 is now correctly labeled 3C.

The description has been amended in view of the proposed drawing correction. The section describing the drawings as been amended to add a description of Figure 3C and the description has been amended to add a reference to Figure 3C.

35 USC § 103 REJECTIONS

Claims 2-14, 16-26, 28-34, and 36-41 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al. (US 6,003,620) in view of Sinclair (US 4,996,489).

Claims 2-14 and 16-26

Independent claims 8 and 23 are amended to clarify that the transmitter (T1) is axially displaced from the receiver (R1). The claimed invention is directed toward testing a material downhole using a core bit to separate a formation sample to a cylindrical enclosure such as a core

barrel. The sample is then tested using at least one transmitter propagating electromagnetic radiation at multiple frequencies into the sample and a receiver displaced from the transmitter for measuring the transmitted electromagnetic radiation in the material at the frequency. Applicant's disclosure clearly shows that the transmitter and the receiver are not the same component. Each embodiment shows a transmitter T1 axially displaced from a receiver R1.

The Examiner's new grounds for rejection uses the teaching of the '620 reference in combination with the teaching of the '489 reference. Applicant respectfully submits that such a combination would not be made by one of ordinary skill in the art without the benefit of hindsight and using Applicant's disclosure.

The '620 reference teaches an electrode array 70 circumferentially disposed about a core barrel. The electrodes are used to transmit and receive electromagnetic energy that passes through a core sample, but there is no teaching of axially separating a transmitter from a receiver as claimed by applicant. Furthermore, there is no teaching of transmitting at least two frequencies as claimed.

The '489 reference teaches an apparatus for use in a laboratory to test a core sample. The method taught focuses on comparing measurements made on the core sample with simultaneous measurements through a standard sample, which is described as typically air. There is a mention of simplifying equations when a core sample fills an entire test cavity. There is however, no teaching of a downhole apparatus.

The present application teaches an claims a downhole apparatus that enables a particular method of testing a core sample. The Examiner suggests a combination of references that do not teach the claimed apparatus suggested by the Examiner. It is only with the benefit of Applicants disclosure that those skilled in the art could practice a downhole testing apparatus and method as claimed, where a transmitter and separate receiver are disposed in a coreing tool to test a core sample in-situ at at least two frequencies. Therefore Applicant respectfully submits that these amended independent claims 8 and 23 and the claims depending therefrom are all allowable over the art of record.

Claims 28-34 and 36-41

Independent claim 30 includes the limitations of at least two transmitters symmetrically arranged about at least two receivers. Independent method claim 38 includes the limitation

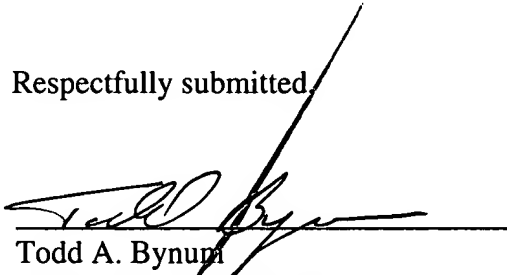
enclosing the material in the cylindrical enclosure, wherein the enclosure includes a first transmitter antenna and a second transmitter antenna arranged symmetrically about a first receiver antenna and a second receiver antenna.

Neither the '620 reference nor the '489 reference teaches such a symmetrical arrangement of transmitter and receiver antennas. Consequently, the combination of the two references does not teach every element of the invention claimed in these independent claims. Applicant respectfully submits that independent claim 30 and claims 28, 29 and 31-34 depending from independent claim 30 are patentable over the cited references. And independent claim 38 and claims 36,37 and 39-40 depending from claim 38 are likewise patentable over the cited art.

CONCLUSION:

For all of the foregoing reasons, Applicants submits that the application is in a condition for allowance. The Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account **02-0429 (414-16782-US)**.

Respectfully submitted,


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